Abstract of the Disclosure

A encapsulated stent device for implantation within the vascular system includes a balloon of a balloon catheter formed around and adhered to a wire-like stent so that the outer surface of the device is more regular for delivery through the vascular system without an exterior sheath. The encapsulation securely anchors the stent to the balloon and maintains a low profile for negotiation of tortuous and narrowed vessels. Encapsulation requires placement of the stent over the balloon, placement of a sheath over the stent on the balloon, heating and preferably pressurization of the balloon to cause it to expand around the stent within the sheath, and cooling while preferably maintaining pressure to cause the balloon to adhere to the stent and to set the shape of the expanded balloon. Retainers may be placed at the distal and/or proximal ends of the stent during the encapsulation process, or the balloon material may expand to form retainers. The balloon defines at least three folded wings for symmetrical expansion of the stent, and one or more connected or non-connected stents may be encapsulated depending upon the area to be treated.

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